REMARKS

Claims 1-3, 5, 6, 8-12 and 14-25 are pending. Claims 4, 7 and 13 have been canceled.

The claims have been amended. The dependency of claim 14 has been modified so that claim 14 does not depend from canceled claim 13. New claim 25 is supported by the disclosure at page 23, line 7 bridging to page 24, line 4 of the specification. No new matter is added by way of the above-amendment.

I. Claim Objections

The Examiner objects to claim 13 for not further limiting claim 10 (the claim from which claim 13 depends). In view of the cancellation of claim 13, this objection is rendered moot.

II. 35 U.S.C. §§ 102 and 103 Rejections

The Examiner has imposed the following new rejections:

A) Claims 8-9 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Akaiwa et al. (US Patent 5,721,990);

B) Claims 1-3, 5-6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jayaraman et al. (US Patent 6,451,499) in view of Tsunogae et al. (WO 00/73366, wherein the citations are from the English equivalent document US Patent 6,486,264) and in further view of Imai et al. (US Pg-Pub 2002/0012880);

C) Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jayaraman et al. (US Patent 6,451,499) in view of Tsunogae et al. (WO 00/73366, wherein the citations are from the English equivalent document US Patent 6,486,264) and Imai et al. (US Pg-Pub 2002/0012880) as applied to claim 16 and in further view of Suwa et al. (US Patent 6,692,887);

D) Claims 10-15, 20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jayaraman et al. (US Patent 6,451,499) in view of Tsunogae et al. (WO 00/73366, wherein the citations are from the English equivalent document US Patent 6,486,264) and in further view of Imai et al. (US Pg-Pub 2002/0012880) and Eilbeck (US Patent 6,790,582); and

E) Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jayaraman et al. (US Patent 6,451,499) in view of Tsunogae et al. (WO 00/73366,

wherein the citations are from the English equivalent document US Patent 6,486,264), Imai et al. (US Pg-Pub 2002/0012880) and Eilbeck (US patent 6,790,582) as applied to claim 20 above and in further view of Suwa et al. (US Patent 6,692,887).

Applicants respectfully traverse Rejections A-E.

With respect to Rejection A, the Examiner notes that claims 8 and 9 are in the product-by-process format. Applicants are aware of the description in MPEP 2113, which basically states that for the process steps to be given patentable weight, Applicants need to show that the process steps recited in the claims would result in a product having a structural distinction from the product in the prior art.

Akaiwa et al. disclose a camera image transfer device which includes a liquid crystal display device capable of forming transparent pattern areas representing data characteristic of forming transparent pattern areas representing data characters to be transferred to the photographic film loaded in the camera and optics to guide the optical beams passing through the transparent pattern areas of the liquid crystal device to the photographic film. Although Akaiwa et al. disclose to apply a transparent photoresist to the transparent pattern forming areas (column 3, lines 51 to 52 of Akaiwa et al.), Akaiwa et al. are silent about the resin composition forming the photoresist of their invention. Only the resins to which Akaiwa et al. refer are methacrylic resin, polycarbonate resin, or ABS resin (column 7, lines 61 to 62 of Akaiwa et al.). However, these resins are disclosed as examples which can be used to make transparent cover 81 or fixture 8 and not as the resins to make the resist and are clearly different from the product obtained by the process of claim 10. As the present claim 8 defines that the transparent resin pattern film is formed in accordance with the process of claim 10, the transparent film defined in claim 8 should have a particular composition inherently owned by a product obtained by the process of claim 10. As Akaiwa et al. are silent about the resin composition forming the resist, it is clear that Akaiwa et al. do not teach or suggest the positive pattern resin film obtained by the process of claim 10.

It is evident that the inventive transparent resin pattern film of claim 8 has structural features which cannot be anticipated by Akaiwa et al., which is only described as being "transparent." The inventive transparent resin pattern film of claim 8 must have at least an

alicyclic resin soluble in an alkali which is hydrogenated. This feature is neither taught nor suggested by Akaiwa et al.

In response to the Examiner's assertion that the patentablity of "product-by-process" claims is given by the product itself, it is respectfully requested that the Examiner clarify the reason why the transparent resin pattern film formed in accordance with the process described 10 is the same or obvious from the resist of Akaiwa et al.

The advantage of the pattern film obtained by the process of claim 10 is clearly seen from the results of Examples 1 to 4 in comparison with the results of Comparative Examples 1 and 2 summarized in Table 2 on page 39 of the specification.

Thus, Applicants consider that presently claimed invention in claim 8 is not only novel but also non-obvious over Akaiwa et al. Claim 9 which depend on claim 8 is also novel and non-obvious over Akaiwa et al. Reconsideration and withdrawal of Rejection A is respectfully requested.

With respect to Rejection B, Applicants respectfully disagree with the Examiner that the combination of Jayaraman et al., Tsunogae et al. and Imai et al. render the present invention obvious for the following reasons.

First of all, the Examiner is aware that Jayaraman et al. fail to disclose the organoruthenium compound (see page 6, lines 7 to 8 of the Office Action). The Examiner is further aware that Jayaraman et al. and Tsunogae et al. fail to teach that a crosslinking compound may be used in the positive resist composition (see page 7, lines 9 to 10 of the Office Action).

Jayaraman et al. disclose polycyclic polymers containing pendant aromatic moieties. The polymers exhibit light transparency properties to deep UV wavelengths making them useful for high resolution photolithographic applications. These polymers are particularly useful in chemically amplified positive and negative tone resists (ABSTRACT of Jayaraman et al.). The monomers represented by formula I of Jayaraman et al. include a wide range of monomers and may contain (although it is not fairly suggested) a monomer comprising an alicyclic olefin monomer having an acidic group.

Jayaraman et al. further disclose a resist composition comprising a polycyclic polymer containing recurring pendant aromatic groups along the polymer backbone. In one aspect of the

invention of Jayaraman et al, the polymers are prepared by polymerizing a reaction medium comprising one or more aromatic substituted polycyclic monomers set forth under Formula I. In another aspect of the invention of Jayaraman et al, one or more of the monomers of Formula I can be copolymerized with monomers selected from Formula II, Formula III, Formula IV, and mixture thereof (column 3, lines 14 to 23 of Jayaraman et al.). In some of the monomers disclosed as Formula I which is essential in the polycyclic polymer of Jayaraman et al., there may be an alicyclic olefin monomer having an acidic group as recited in claim 1 of Jayaraman et al. However, Jayaraman et al. only disclose such monomers as a possible monomer within the vast variety of the monomers disclosed in the Formulae I to IV and fails to disclose that a monomer having an acidic group is essential in the monomer composition for obtaining the polycyclic polymer. In column 15, lines 64 to 67 of Jayaraman et al., the following is disclosed:

> The cyclic polymer of the invention will generally comprise about 5 to 100 mole % of a repeating unit derived from a monomer set forth under Formula I, i.e., a monomer containing a hydroxyl substituted aromatic group.

However, Jayaraman et al. disclose various alternatives for G in Formula I at the bottom of column 3 bridging to column 4, line 17, wherein substituent X on the aromatic groups independently represents OR^{14} or R^{15}, and wherein R^{14} is hydrogen, linear and branched (C_1 to C_{10} alkyl), $-C(O)CH_3$, tetrahydropyranyl, t-butyl; and R^{15} is hydrogen; a hologen atom selected from bromine, chlorine, fluorine, and iodine; cyano, and the group -CO(O)O-t-butyl. Namely, when both of R^{14} and R^{15} are not hydrogen and $-(CH_2)C(O)OR$ is not contained in any of R^1 to R^4, the monomer represented by Formula I does not contain an acid group as recited in claim 1. In other words, there is a very small subgenus of compounds which are part of the huge genus of Formula I which have an acidic group as required by the present invention.

Furthermore, in column 14, lines 31 to 40 of Jayaraman et al., the following is disclosed:

> When polymerizing the monomers set forth under Formulae I to III wherein R^1 to R^{12} is selected from a substituent that contains a hydroxyl moiety, it is preferable (particularly when the Group VIII metal catalysts are employed) to protect the hydroxyl moiety during the polymerization reaction. The protecting group serves

> to protect the functional group containing the hydroxyl moiety from undesired side reactions or to block its undesired reaction with other functional group or with the catalysts employed to polymerize the polymer. (emphasis added)

Considering from the clause in the parenthesis cited above: "particularly when the Group VIII metal catalysts are employed", it is clear that Jayaraman et al. particularly prefer to protect the hydroxyl moiety during the polymerization reaction even when a ruthenium catalyst is used. It is noted here that ruthenium is one of the Group VIII metals. Indeed, although Jayaraman et al. disclose that in one ROMP embodiment the polycyclic monomers of the invention can be polymerized in the presence of a single component ruthenium or osmium metal carbene complex catalyst (see column 12, lines 27 to 30 of Jayaraman et al.), Jayaraman et al. fail to disclose any Example of a polymer obtained by using an alicyclic olefin monomer having an acidic group which is un-protected and a ruthenium catalyst in any portion of the description. In column 12, line 66 bridging to column 13, line 2 of Jayaraman et al. state:

> Alternatively, and preferably, the monomers of this invention are addition polymerized in the presence of a single or multicomponent catalyst system comprising a Group VIII metal ion source (preferably palladium or nickel).

Also, in all of the Examples of Jayaraman et al., it is clear that the substance of the invention of Jayaraman et al is directed to a polycyclic polymer obtained by polymerizing a polycyclic monomer having a protected acid group in the presence of a catalyst system comprising a Group VIII metal ion source. It is noted that such a technical solution is referred to in one of the prior art documents discussed in the present specification at page 2, lines 7 to 14 as follows:

> In response to the above requirement, compositions comprising an alicyclic olefin resin soluble in an alkali which is obtained by ring-opening polymerization of a norbornene-based monomer having an ester group, followed by hydrogenation of the obtained polymer and hydrolysis of the ester group portion to form bonded carboxylic group, an acid-generating agent and a crosslinking agent, are proposed (Japanese Patent Application Laid-Open Nos. Heisei 10(1998)-307388 and Heisei 11(1999)-52574).

On page 2, line 15 bridging to page 3, line 14 of the present specification, the following is disclosed:

> However, it has been confirmed by the present inventors that the resin films formed by using the radiation sensitive resin compositions described in the above two patent publications have poor storage stability and property for development although permittivity, water absorption, flatness, solvent resistance and dimensional stability under heating are excellent. Since a radiation sensitive resin composition is used in an industrial process, in general, after the composition is prepared in a suitable vessel and, then, transferred to an apparatus for applying to a substrate or the like, the storage stability of the composition is very important.
>
> As the result of intensive studies based on the above knowledge by the present inventors to obtain a radiation sensitive resin composition which is suitable for industrial process, it was found that an alicyclic olefin resin soluble in an alkali could be obtained without the hydrolysis step when an alicyclic olefin monomer having an acidic group such as carboxyl group was polymerized in the presence of a catalyst containing ruthenium (a ruthenium catalyst) and the obtained polymer was hydrogenated in place of obtaining, as specifically described in examples of the above publications, an alicyclic olefin resin by ring-opening polymerization of an alicyclic olefin monomer having an alkyloxycarbonyl group in the presence of a catalyst containing tungsten (a tungsten catalyst), followed by hydrogenation of the obtained polymer and hydrolysis of the hydrogenation product to obtain carboxylic acid, and that the resin obtained by the present inventors exhibited the storage stability suitable for the industrial process and provided a radiation sensitive resin composition exhibiting an improved property for development.

On page 17, line 23 bridging to page 18, line 7 of the present specification, it is still further disclosed with respect to the hydrogenation catalyst as follows:

> Since the carbon-carbon double bond can be hydrogenated selectively without side reactions such as modification of functional groups, the

> noble metal complex catalysts having a noble metal such as rhodium and ruthenium are preferable, and ruthenium catalysts in which compounds exhibiting a great electron-donating property such as heterocyclic carbene compounds having nitrogen atom and phosphines are coordinated are more preferable, among the above hydrogenation catalysts.
>
> Since the ruthenium catalyst works also as the polymerization catalyst as described above, the hydrogenation can be conducted successively after the ring-opening polymerization. In this case, the activity of the ruthenium catalyst can be enhanced by adding a catalyst modifier.

Stated differently, the catalyst comprising ruthenium is not only effective in the ring-opening polymerization of a polymerizable monomer comprising an alicyclic olefin monomer having an acidic group, but also is very advantageous because the same catalyst can work as the hydrogenation catalyst in the hydrogenation step following the ring-opening polymerization. Such a particular and prominent effect is not disclosed in Jayaraman et al.

Applicants respectfully submit that if the Examiner uses the genus-species analysis for obviousness as set forth in MPEP 2144.08, the Examiner would conclude that the present invention is non-obvious. First, the size of the genus of polycyclic monomers described by Jayaraman et al. includes hundreds of thousands of compounds. Second, Jayaraman et al. do not include any example of an acid substituted polycyclic compounds as required by the present claims. As such, there are no teachings within Jayaraman et al. of a "typical," "preferred," or "optimum" species or subgenus which would lead the artisan towards choosing the inventive alicyclic olefin monomers having an acidic group. Third, Jayaraman et al. teach away from using alicyclic olefin monomers having an acidic group in view of the fact that Jayaraman et al. use protective groups on the acid groups. There is no teaching or suggestion regarding how to run the reaction without protective groups.

As such, significant patentable distinctions exist between the present invention and the teachings of Jayaraman et al. The Examiner attempts to cure certain deficiencies by citing Tsunogae et al. However, Applicants respectfully submit that Tsunogae et al. fail to cure all of the deficiencies of Jayaraman et al.

Tsunogae et al. disclose a process for producing a hydrogenated product of a polymer prepared through ring-opening polymerization which comprises a polymerization step of polymerizing a cyclic olefin through ring-opening polymerization in the presence of a polymerization catalyst comprising an organoruthenium compound to prepare a polymer, and a hydrogenation step of adding a hydrogenation catalyst and hydrogen into a polymerization system resulting from the polymerization step to hydrogenate the carbon-carbon double bonds of the polymer prepared through the ring-opening polymerization. When the organoruthenium compound- or organoosmium compound-containing catalyst further comprises a carbene compound, the catalyst exhibits a higher activity for the ring-opening polymerization (ABSTRACT of Tsunogae et al.). Tsunogae et al. further disclose examples of various alicyclic olefins as the monomers polymerizable by the process and some of the monomers may be an alicyclic olefin monomer having an acidic group as defined in claim 1. However, Tsunogae et al. only generically disclose these monomers as monomers polymerizable by the process. Tsunogae et al. fail to disclose any Example of ring-opening polymerization of an alicyclic olefin monomer having an acidic group as defined in claim 1. In the same manner as Jayaraman et al. who particularly prefer to protect the hydroxyl moiety during the polymerization reaction even when a ruthenium catalyst is used (as set forth above), one of ordinary skill in the art would not be motivated to arrive at the concept of ring-opening polymerization of an alicyclic olefin monomer having an acidic group (which is not protected) as defined in claim 1 even if the catalyst taught by Tsunogae et al. is used in the ring-opening polymerization of Jayaraman et al., but would only arrive at a ring-opening polymerization of monomers having a protected acidic group.

It is further noted that Tsunogae et al. fail to teach or suggest that the polymer obtained by the ring-opening polymerization can be advantageously used as a radiation sensitive resin composition which is capable of forming a positive pattern resin film.

As such, significant patentable distinctions exist between the present invention and the teachings of Jayaraman et al. and Tsunogae et al. The Examiner attempts to cure certain deficiencies by citing Imai et al. However, Applicants respectfully submit that Imai et al. fail to cure all of the deficiencies of Jayaraman et al. and Tsunogae et al.

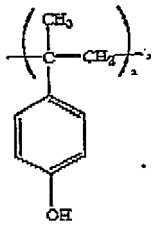
Imai et al. cites a prior art document JP-A-8-94827 (see [0007]) and further disclose in [0008] as follows:

> This photosensitive composition is developed as follows; by heating the film on which the positive photosensitive composition has been applied, an addition reaction of the carboxyl group and/or hydroxyphenyl group with the vinyl ether group forms a crosslink, which is insoluble to a solvent or an alkali developing solution, and then, after irradiating with an active energy beam and then, as necessary, heating the film, an acid generated in the irradiated area acts as a catalyst to cleave the crosslink structure and thus to again make the irradiated area soluble to a solvent or an alkali developing solution (see [0008], lines 1 to 11 of Imai et al.).

As clearly seen from the disclosure, the crosslink structure has to be cleaved by irradiation with an active energy beam in order that the photosensitive composition in JP-A-8-94827 has a positive sensitive property.

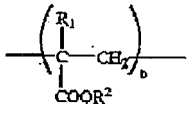
Also, Imai et al. disclose:

> a positive sensitive resin composition comprising a base polymer, an ether-bond-containing olefinic unsaturated compound and an acid-generating agent, where the base polymer is a copolymer comprising the structural units represented by formula (1):
>
> (1)



(1)

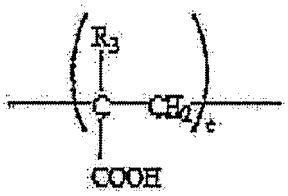
> formula (2):
>
> (2)



(2)

where R^1 is hydrogen or methyl and R^2 is C_1-C_6 straight or branched unsubstituted alkyl or C_1-C_6 straight or branched substituted alkyl, and formula (3):

(3)



(3)

where R^3 is hydrogen or methyl,
wherein a, b and c are 0.05 to 0.7, 0.15 to 0.8 and 0.01 to 0.5, respectively and a+b+c=1 (claim 1 of Imai et al.).

The ether-bond-containing olefinic unsaturated compound also acts as a crosslinker as similar as in JP-A-8-94827 and the crosslinked structure formed by heating is cleaved by irradiation with an active energy beam which makes the irradiated portion of the resist soluble in a developing solution (see [0049] of Imai et al.). In contrast to JP-A-8-94827 and Imai et al., the positive sensitive property of a radiation sensitive resin composition comprising an alicyclic olefin resin soluble in an alkali, an acid-generating agent, and a solvent as disclosed in the presently claimed invention or in Jayaraman et al. is exhibited by the cleavage of the acid labile pendant group of the alicyclic olefin resin catalyzed by the free acid produced by the irradiation of radiation-active acid generator which converts the resin from dissolution inhibitor to dissolution enhancer thereby increasing the solubility of the exposed resin composition in an aqueous base (e.g., column 20, lines 22 to 29 of Jayaraman et al.). Stated differently, the positive sensitive property itself of the radiation sensitive resin composition of the presently claimed invention can be exhibited even if a crosslinking agent is not contained in the composition. Thus, the crosslinking agent of the presently claimed invention has a quite different effect from

that of JP-A-8-94827 and Imai et al. In contrast to Imai et al. and JP-A-8-94827, the crosslinking agent of the presently claimed invention is not added in order that the radiation sensitive resin composition of the presently claimed invention exhibits the positive sensitive property.

In contrast, the positive sensitive property of the radiation sensitive resin composition of the presently claimed invention is exhibited by a quite different mechanism without adding the crosslinking agent as set forth above. The crosslinked structure formed by the crosslinking agent in the presently claimed invention is not cleaved by irradiation with an active energy beam but is maintained even after being irradiated with an active energy beam followed by a developing step in order that the resin pattern formed on a substrate can be cured by heating (post-baking) after the developing step (see page 29, lines 21 to 24 of the specification). Thus, the crosslinker of JP-A-8-94827 or Imai et al. which forms a crosslinked structure which can be cleaved by irradiation with an active energy beam cannot be used as the crosslinking agent of the presently claimed invention. Furthermore, it is noted that Imai et al. of course fail to teach or suggest to use an alicyclic olefin resin soluble in an alkali which is a ring-opening polymer having an acidic group which is obtained by ring-opening polymerization of a polymerizable monomer comprising an alicyclic olefin monomer having an acidic group in a presence of a catalyst comprising as a main component an organoruthenium compound in which a neutral electron-donating ligand is coordinated as defined in the presently claimed invention. A person of ordinary skill in the art would not be motivated with a reasonable expectation of success by Imai et al. to use the ether bond-containing unsaturated compound of Imai et al. as crosslinker in the positive resist composition of Jarayaman et al modified by Tsunogae et al. to arrive at the presently claimed invention.

As such, significant patentable distinctions exist between the present invention and the combined teachings of Jarayaman et al, Tsunogae et al. and Imai et al.

Furthermore, claims 2-3, 5-6 and 16 which directly depend on claim 1 are not considered to be obvious over the combined teachings of Jarayaman et al, Tsunogae et al. and Imai et al. based on the discussions set forth above with respect to claim 1.

As such, reconsideration and withdrawal of Rejection B are respectfully requested.

With respect to Rejection C, the Examiner relies on Jarayaman et al, Tsunogae et al.

and Imai et al., as recited above, and the Examiner includes Suwa et al. to reject claims 17-19. Applicants respectfully disagree that this combination of references renders claims 17-19 unpatentable for the following reasons.

The Examiner cites Suwa et al. for teaching 1,2-naphthoquinone- diazide-5-sulfonic acid ester of 2,3,4,4'-tetrahydrobenzophenone.

With respect to claim 16 on which 17 to 19 depend directly or indirectly, Applicants consider that the obviousness rejection to the claim has been overcome by the discussions set forth above. Therefore, any one of ordinary skill in the art would not arrive at the subject matter defined in claims 17 to 19 even if the 1,2-naphthoquinone- diazide-5-sulfonic acid ester of 2,3,4,4'-tetrahydrobenzophenone of Suwa et al. is used in the resist composition of Jayaraman et al. modified by Tsunogae et al. and Imai et al.

As such, reconsideration and withdrawal of Rejection C are respectfully requested.

With respect to Rejection D, the Examiner relies on Jarayaman et al, Tsunogae et al. and Imai et al., as recited above, and the Examiner includes Eilbeck to reject claims 10-15, 20 and 24. Applicants respectfully disagree that this combination of references renders claims 10-15, 20 and 24 unpatentable for the following reasons.

It has been already discussed that the crosslinked structure formed by heating the positive sensitive resin composition of Imai et al. should be cleaved by irradiation with an active energy beam in order that the resin composition is positive sensitive. Therefore, a person of ordinary skill in the art would consider as a natural conclusion, that the radiation sensitive resin composition obtained by modifying the resist composition of Jayaraman et al. modified by Tsunogae et al. with the crosslinker of Imai et al. has lost the crosslinked structure after the irradiation with an active energy ray to form a positive pattern. Thus, even if Eilbeck teaches a post-development heat treatment or bake, one of ordinary skill in the art would not consider to conduct the post-development heat treatment on the resist film obtained from the radiation sensitive resin composition obtained by modifying the resist composition of Jayaraman et al. modified by Tsunogae et al. with the crosslinker of Imai et al., since he/she would consider that the crosslinked structure has already cleaved by the irradiation with an active energy beam. It is further noted that although Eilbeck discloses a composition comprising:

a) a novolak resin partially esterified with from about 3 to about 7 weight percent of a naphthoquinonediazidosulfonyl group;
b) a dilution resin mixture of a non-esterified novolak resin and polyhydroxy phenols; and
c) at least one solvent (see ABSTRACT of Eilbeck) and to coat the composition on a substrate to form a photoresist-coated substrate, and the photoresist-coated substrate is then exposed to an actinic radiation followed by developing to remove the imagewise exposed, non-image areas using an alkaline developing solution and to conduct an optional post-development heat treatment (see column 11, line 66 bridging to column 12, line 50 of Eilbeck),

Eilbeck fails to teach or suggest the radiation sensitive resin composition as defined in claim 1 containing an alicyclic olefin resin soluble in an alkali and a crosslinking agent. As such, one of ordinary skill in the art would not be motivated by Eilbeck to conduct a post-development heat treatment disclosed for such a quite different resin composition from that of the presently claimed invention to arrive at the process of the presently claimed invention.

As such, significant patentable distinctions exist between the present invention and the combined teachings of Jarayaman et al, Tsunogae et al., Imai et al. and Eilbeck.

Furthermore, claims 11 to 15 and 20 which directly depend on claim 10 are not considered to be obvious over the combined teachings of Jarayaman et al, Tsunogae et al., Imai et al. and Eilbeck based on the discussions set forth above with respect to claim 10.

With respect to claim 24, claim 24 is directed to a resin film of a positive pattern which is formed of the radiation sensitive resin composition as defined in claim 1 and further defines that the resin film is cured by heating (post baking) after the positive pattern of the resin film is developed. Since it is considered that the subject matter of the claim 1 has been shown to be non-obvious over Jarayaman et al. in view of Tsunogae et al. and in further view of Imai et al. and Eilbeck by the discussions set forth above, claim 24 also is considered to be non-obvious.

As such, reconsideration and withdrawal of Rejection D are respectfully requested.

With respect to Rejection E, the Examiner relies on Jarayaman et al, Tsunogae et al.,

Imai et al., Eilbeck as recited above, and the Examiner includes Suwa et al. to reject claims 21-23. Applicants respectfully disagree that this combination of references renders claims 21-23 unpatentable for the following reasons.

Jarayaman et al., Tsunogae et al., Imai et al. and Eilbeck have been discussed above and Applicants consider that it has already shown that claim 20 on which claims 21 to 23 directly or indirectly depend is non-obvious over the combination of Jarayaman et al., Tsunogae et al., Imai et al. and Eilbeck by the discussions set forth above. Therefore, claims 21 to 23 also are considered to be non-obvious.

As such, reconsideration and withdrawal of Rejection E are respectfully requested.

III. New Claim 25

With respect to new claim 25, this claim is further distinguished from the cited references. The Examiner relies on Imai et al. for teaching crosslinking agents. Imai et al. fail to teach or suggest any of the crosslinking agents as recited in new claim 25.

In view of the above amendment, Applicants believe the pending application is in condition for allowance.

Conclusion

In view of the above remarks, it is believed that claims are allowable.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Garth M. Dahlen, Ph.D., Esq., Reg. No. 43,575 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated: June 15, 2009

Respectfully submitted,

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